REMARKS

Independent claims 1, 26, 27, 28, and 62 have been amended to specify that the current collector includes a 6000 series aluminum alloy that includes 0.04-0.4% by weight of chromium, 0.01-6.8% by weight of copper, 0.1-7% by weight of magnesium, 0.15% or less by weight of manganese, and 0.4-0.8% by weight of silicon. Independent claim 56 is specific for the Aluminum 6061 alloy in Table 1.

All the pending claims are directed to using a relatively specific 6000 series aluminum alloy. The aluminum 6061 alloy, which is covered by all the claims, exhibit excellent properties when used in current collectors; see the examples beginning on page 10 of the application.

Claims 1, 26, 27, 28, 56, and 62 have been rejected under 35 U.S.C. § 103(a) over the combination of Sonoda et al., U.S. Pub. 2002/0028389 ("Sonoda") in view of Tischer et al., Science, Vol. 26, No. 5, pp. 377-388, 1986 ("Tischer"). Applicants respectfully request that the rejection be reconsidered and withdrawn for the following reasons.

Applicants will discuss Tischer first. Tischer relates to a specific problem found in a specific type of battery. That battery uses sodium as the active anode material and sulfur as the active cathode material. Apparently, such batteries operate at a high temperature at which the polysulfide/sulfur melt in the cathode causes corrosion of the cathode current collector. Tischer says he solved this problem by using an aluminum/silicon carbide composite for the cathode current collector. The composites include an aluminum alloy matrix embedded with silicon carbide composites. See pp. 377-78 (and in particular Fig. 1 on p. 377) of Tischer. One of the aluminum alloys used by Tischer was aluminum 6061.

Sonoda describes lithium batteries that include a particular type of solute in the electrolyte. The batteries have an anode containing lithium or a material capable of absorbing and desorbing lithium; sodium is not among the disclosed anode active materials (see ¶ 44 of Sonoda). The batteries have a cathode including one or more of the following materials as the cathode active material (id. ¶ 51):

> **[0051]** Examples of the positive electrode active material include Li_xCoO_2, Li_xNiO_2, Li_xMnO_2, $Li_xCo_yNi_{1-y}O_2$, $Li_xCo_yM_{1-y}O_z$, $Li_xNi_{1-y}M_yO_z$, $Li_xMn_2O_4$, $Li_xMn_{2-y}M_yO_4$, where M is at least one element selected from the group consisting of Na, Mg, Sc, Y, Mn, Fe, Co, Ni, Cu, Zn, Al, Cr, Pb, Sb and B, and x, y and z satisfy $0 \leqq x \leqq 1.2$, $0 \leqq y \leqq 0.9$, and $2.0 \leqq z \leqq 2.3$. The above value of x increases or decreases during the charging and discharging of the battery. Additionally, transition metal chalcogenides, lithium-containing vanadium oxides, lithium-containing niobium oxides, conductive conjugated polymers, Chevrel phase compounds or the like may also be used as the positive electrode active material.

Sulfur is not listed among the cathode active materials. Moreover, Sonoda does not teach that the cathode current collector in his battery have the erosion problem, or even an analogous erosion problem, found in the sodium/sulfur batteries disclosed by Tischer. Thus, a person of ordinary skill in the art would not be motivated to combine the cathode current collector from Tischer -- designed to withstand corrosion caused by the polysulfide/sulfur melt in the cathode at the high operational temperature of the sodium/sulfur batteries -- with a lithium battery disclosed by Sonoda, who does not disclose or otherwise suggest such issues for his lithium batteries.

The 35 U.S.C. § 103(a) rejection of all the claims should be withdrawn for this reason.

Claims 1, 26 , 27, 28, 56, and 62 do not name a specific type of cathode active material. However, new dependent claims 71-75 specify that the cathode active material includes a metal oxide and/or a metal halide. Thus, these claims use a different cathode active material than the sulfur used by Tischer and are even more remote from the combination of Sonoda and Tischer.

Finally, new dependent claims 76-82 require that the cathode current collector is a grid and that at least a portion of the grid consists of (includes only) the aluminum alloy. Support can be found in the specific examples beginning on page 10 of the application that include current collectors made of aluminum 6061 alloy. Applicants note that even if the cathode current collector from Tischer is used in a battery disclosed by Sonoda the resulting battery would be different from the one covered by claims 76-82. This is because Tischer's cathode current collector includes silicon carbide particles dispersed through the aluminum alloy matrix. As a result, no portion of the current collector consists of the aluminum alloy alone, but rather also includes silicon carbide particles.

Applicants respectfully submit that the claims are in condition for allowance and such action is requested.

Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

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